

**CASE 1  
REINFORCED CONCRETE BEAM**

See table on this sheet below for minimum length of bearing.

**DIMENSIONS OF  
REINFORCED CONCRETE BEAM**

| S<br>or<br>C | DEPTH OF COVER |   |              |   |               |   |
|--------------|----------------|---|--------------|---|---------------|---|
|              | 0'-8'-0"       |   | 8'-1'-16'-0" |   | 16'-1'-25'-0" |   |
| t            | BAR NO         | t | BAR NO       | t | BAR NO        |   |
| 4            | 8"             | 4 | 8"           | 4 | 9 1/2"        | 5 |
| 5            | 8"             | 4 | 9"           | 5 | 11"           | 5 |
| 6            | 8 1/2"         | 5 | 10 1/2"      | 5 | 12 1/2"       | 6 |
| 7            | 9"             | 5 | 11 1/2"      | 6 | 13 1/2"       | 6 |
| 8            | 10"            | 5 | 12 1/2"      | 6 | 15"           | 7 |
| 9            | 11"            | 6 | 13 1/2"      | 6 | 16 1/2"       | 7 |
| 10           | 12"            | 6 | 15"          | 7 | 18"           | 7 |
| 11           | 13"            | 6 | 16"          | 7 | 19 1/2"       | 8 |
| 12           | 13 1/2"        | 6 | 17"          | 7 | 21"           | 8 |
| 13           | 14 1/2"        | 7 | 18 1/2"      | 7 |               |   |
| 14           | 15 1/2"        | 7 | 20"          | 8 |               |   |
| 15           | 16 1/2"        | 7 | 21"          | 8 |               |   |
| 16           | 17 1/2"        | 7 |              |   |               |   |
| 17           | 18 1/2"        | 8 |              |   |               |   |
| 18           | 19 1/2"        | 8 |              |   |               |   |

**Minimum Lengths Of Bearing Of  
Ends Of R.C. Beams**

| Design of Cover | S             | Min. Bearing |
|-----------------|---------------|--------------|
| 0'-8'-0"        | 0'-18'-0"     | 18"          |
| 8'-1'-16'-0"    | 0'-12'-0"     | 18"          |
|                 | 12'-1'-18'-0" | 24"          |
| 16'-1'-25'-0"   | 0'-7'-0"      | 18"          |
|                 | 7'-1'-10'-0"  | 24"          |
|                 | 10'-1'-12'-0" | 30"          |

**CASE 2  
CONCRETE SUPPORT WALL**

**GENERAL NOTES**

- In the case of sanitary sewer supports per Case 1, 2 or 3 of this standard, the sewer shall be encased per the SECTION E-E, and the support shall be lengthened and widened to fully support such encasement.
- Any of the cases shown on this standard may be used at the contractor's option unless otherwise shown on the project drawing.
- The minimum lengths of bearing shown at the ends of R.C. Beams, cast-iron and steel pipes shall be increased if so directed by the Engineer.
- "S" in all cases equals the span of the pipe support measured along its centerline between the sides of the trench or to centerlines of column supports.

**CASE 1 NOTE**

- Width of beam shall be outside diameter of pipe plus 2"
- Reinforcing steel shall be placed 1/2" clear from sides and bottom of beams
- If beams are precast ends of beams shall be bedded in 1:3:5 mix concrete to edge of trench
- 1:2 mix mortar shall be placed between top of beams and bottom of pipe to give bearing.

**CASE 2 NOTES**

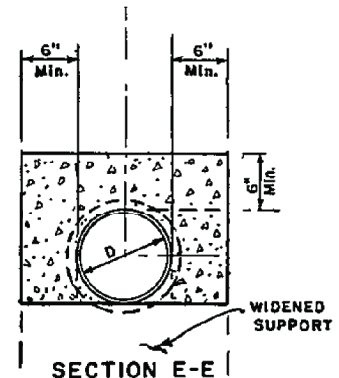
- Supporting wall shall have a firm bearing on the subgrade and against the sides of the excavation
- Wall shall be at least 2" free and clear of gas or water main or other conduit or duct.
- Either Type A or Type B cross section may be used at the contractor's option.
- Whenever so directed by the engineer, the contractor shall pierce the wall with suitable openings to prevent unequal pressure resulting from flooding the backfill. The volume of the pierced openings shall not exceed 1/2 the volume of the supporting wall.

**CASE 3 NOTES**

- Class 2000-D spun reinforced concrete pipe of the same diameter as existing pipe may be used only where width of trench is 5'-0" or less.

**ALLOWABLE SPANS FOR CAST IRON PIPE**

| DEPTH OF COVER | CLASS 150 PIPE  |        |        | CLASS 250 PIPE  |        |        |
|----------------|-----------------|--------|--------|-----------------|--------|--------|
|                | INSIDE DIAMETER |        |        | INSIDE DIAMETER |        |        |
|                | 6"              | 8"     | 10"    | 6"              | 8"     | 10"    |
| 0'-8'-0"       | 8'-6"           | 11'-0" | 13'-0" | 8'-6"           | 11'-6" | 13'-0" |
| 8'-1'-16"      | 6'-6"           | 8'-0"  | 10'-0" | 8'-6"           | 8'-6"  | 10'-6" |
| 16'-1'-25"     | 5'-0"           | 6'-0"  | 8'-0"  | 5'-0"           | 6'-6"  | 8'-6"  |



RIVERSIDE COUNTY FLOOD CONTROL  
AND  
WATER CONSERVATION DISTRICT

APPROVED BY:  
*Warren D. Williams*  
CHIEF ENGINEER

DATE: Dec. 18, 2003 R.C.E. No. 32336

**PIPE SUPPORTS  
ACROSS TRENCHES**

STANDARD DRAWING NUMBER M806